

# Solid State Lighting Operational Plan

The U.S. Department of Energy (DOE) supports domestic research, development, demonstration, and commercial application of advanced solid state lighting (SSL) technologies that are significantly more energy efficient than current lighting technologies. Guided by a government-industry partnership, the mission is to create a new market for high efficiency, general illumination products through the advancement of light-producing semiconductor technologies. These products will not only save a significant amount of energy, they will also enhance the quality of the electrically lighted environment.

DOE has set aggressive goals for SSL R&D: By 2015, to develop advanced SSL technologies that, compared to conventional lighting technologies, are much more energy efficient, longer lasting, and cost-competitive. DOE is targeting a product system efficiency of 50 percent with lighting that accurately reproduces the full spectrum of sunlight.

## The SSL Operational Plan

DOE has structured a SSL operational plan (see Figure 1) that features two concurrent, interactive thrusts:

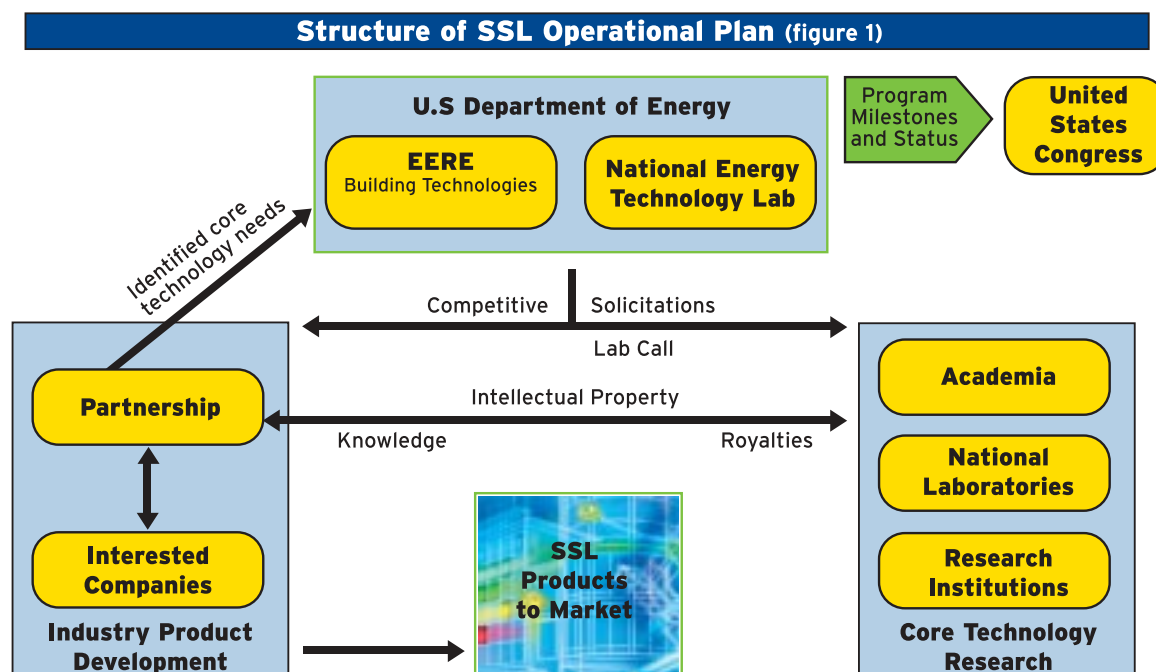
- Core Technology Research, conducted by academia, national laboratories, and research institutions
- Product Development, conducted by industry

The operational structure also includes a SSL Partnership that will provide significant input to shape the Core Technology Research priorities, plus innovative intellectual property provisions.

## The Role of Industry

DOE plans to competitively solicit a SSL Partnership composed of manufacturers and allies that are individually or collaboratively capable of manufacturing and marketing the desired SSL products. Partnership members must comply with pertinent DOE guidelines on USA-based research and product development.

A key function of the SSL Partnership is to provide input to shape the Core Technology Research priorities. As SSL technologies develop, any R&D gaps identified will be filled through Core Technology Research—allowing the SSL industry to continue their development



process, while much-needed breakthrough technologies are created in parallel. The Partnership members will confer among themselves and communicate their aggregated R&D needs to DOE program managers, who will, in turn, transfer these needs to the Core Technology Research area.

In addition, DOE expects to solicit proposals from interested companies (or teams of companies) for product development, demonstrations, and market conditioning. DOE expects these proposals will include comprehensive work plans to develop a specific SSL product or product family. Since the ultimate goal is to manufacture energy-efficient, high performance SSL products, each work plan should address the abilities of each participant or manufacturer throughout the development process. These offerors must not only have all the technical requirements to develop the desired SSL technology, but also must have reasonable access to manufacturing capabilities and targeted markets to quickly move their SSL product from the industry laboratory to the marketplace.

### Core Technology Research

Core Technology Research will provide the focused applied research needed to advance SSL technology—research that is typically longer-term in nature and not the focus of sustained industry investment. DOE will fund these research efforts at universities, national laboratories, and other research institutions through one or more competitive solicitations.

Core Technology Research will support the SSL Partnership by providing problem-solving research to overcome barriers identified by the Partnership. It is DOE's current plan that participants in this research will perform work subject to what is termed an "exceptional circumstance" to the Bayh-Dole Act, and any resultant intellectual property will be offered to all Partnership members with a non-exclusive license. Core Technology Research projects will be peer-reviewed by government personnel, independent organizations, and the SSL Partnership.

### High-Level Timeline

Figure 2 details the high-level timeline for the SSL Operational Plan. DOE expects to issue at least three solicitations in the near-term for:

- The SSL Partnership
- Core Technology Research by academia, national laboratories, and research institutions
- SSL Product Development by industrial teams

The latter two solicitations will be repeated annually. A number of annual meetings will be held to provide regular DOE management and review checks, and to keep all interested parties adequately informed. More specifically, these meetings will:

- Provide a general review of progress on the individual projects (open meeting)
- Review and update the R&D plan for upcoming "statement of needs" in future solicitations (open meeting)
- Provide a peer review of Core Technology Research projects by the Partnership
- Provide individual project reviews by DOE

**SSL Operational Plan Process (figure 2)**

